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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,399	06/29/2001	Masatoshi Arishiro	018976-199	6008

7590 12/16/2004

Platon N. Mandros
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER

HARAN, JOHN T

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 12/16/2004

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Application Number: 09/893,399
Filing Date: June 29, 2001
Appellant(s): ARISHIRO ET AL.

MAILED

DEC 1 6 2004

GROUP 1700

Ellen Marcie Emas
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11/23/04.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Grounds of Rejection to be Reviewed on Appeal*

The appellant's statement of the grounds of rejection is correct.

(7) *Claims Appendix*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

The following is a listing of the evidence (e.g., patents, publications, Official Notice, and admitted prior art) relied upon in the rejection of claims under appeal.

Yoshimura	JP 04-239604	8/27/92
Takane et al	JP 10-321457	12/4/98
Baccini	US 6,109,323	8/29/00

Yoshimura is directed to **the general inventive concept of the application** and discloses an apparatus for manufacturing laminated ceramic electronic components wherein the laminated ceramic components are formed by laminating a plurality of different ceramic green sheets in a specified order. The apparatus comprises a sheet supplier comprising a plurality of trays, each tray holding a plurality of ceramic green sheets of the same type and each tray holding a different type of ceramic green sheet from the other trays; a laminator for laminating a plurality of ceramic green sheets supplied from the sheet supplier at lamination station; and a conveyor device for picking up single ceramic green sheets from the trays and conveying the ceramic green sheets to the laminator in a predetermined order (See English translation paragraphs 0012-0016 and Figures 1 and 4).

Takane et al is also directed to **the general inventive concept of the application** and discloses an apparatus for manufacturing laminated ceramic components wherein the laminated ceramic components are formed by laminating a plurality of different ceramic green sheets in a specified order. The apparatus

comprises a vertical rack that holds a plurality of magazines with slots, each magazine holding ceramic green sheets of the same type and each slot having a single ceramic green sheet; a drawing device for drawing the sheets out of the slots; a laminator for laminating a plurality of ceramic green sheets; and a conveyor device for picking up single ceramic green sheets from the drawing device and conveying them to the laminator in a predetermined order (See English translation paragraphs 0014 –0015 and Figure 5).

Baccini teaches a fully automated system for laminating ceramic green sheets in a predetermined order and teaches having storage codes or identification plaques on the pallets (trays) for cooperating with code readers in providing correct organization from the automated system (Column 2, lines 31-34).

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:
Claims 1, 3, and 5-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshimura (JP 04-239604) in view of Takane et al (JP 10-321457) and Baccini (U.S. Patent 6,109,323).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a vertical rack for aligning and storing the trays and a tray drawer device, situated on a guide rail, for drawing the trays from the rack so the conveyor device can pick up the individual ceramic green sheets in the apparatus of Yoshimura, as suggested in Takane et al; to include a drive for driving the vertical rack

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to be raised and lowered in a vertical direction to position the trays at a predetermined height for removal by the tray drawing device in the apparatus of Yoshimura; and to have an automated system with a processor unit adapted to receive data concerning at least a type, an order in lamination, and a quantity of ceramic green sheets necessary for a laminate, as is well known and conventional, in the apparatus of Yoshimura, as suggested in Baccini.

Yoshimura is directed to **the general inventive concept of the application** and discloses an apparatus for manufacturing laminated ceramic electronic components wherein the laminated ceramic components are formed by laminating a plurality of different ceramic green sheets (16A-16E) in a specified order. The apparatus comprises a sheet supplier comprising a plurality of trays (11A –11E), each tray holding a plurality of ceramic green sheets of the same type and each tray holding a different type of ceramic green sheet from the other trays; a laminator for laminating a plurality of ceramic green sheets supplied from the sheet supplier at lamination station (13); and a conveyor device (12) for picking up single ceramic green sheets from the trays and conveying the ceramic green sheets to the laminator in a predetermined order (See English translation paragraphs 0012-0016 and Figures 1 and 4).

Yoshimura teaches that the trays are arranged in a horizontal plane (See Figure 4) and is silent towards having a vertical rack for aligning the trays and a tray drawer device for drawing the trays from the vertical rack. However, it is well known and conventional in the ceramic art to store ceramic green sheets in a vertical magazine rack and remove single ceramic green sheets from the slots of the magazine in a

predetermined order and convey them to a lamination station, as shown for example in Takane et al (See Figure 5 and paragraph 0014 of English translation). Furthermore, one skilled in the art would have readily appreciated that arranging the trays in a horizontal plane or in a vertical plane are alternate expedients.

One skilled in the art would have readily appreciated that while Takane et al has a rack (31) with slots for holding individual ceramic green sheets (10) and a sheet drawing device (35) for drawing the individual sheets from the slots, such a rack would be readily capable and/or adaptable for the slots to hold trays with a plurality of ceramic green sheets inside and that such a drawing device would be readily capable and/or adaptable for drawing out trays. One skilled in the art would have readily appreciated that the trays of Yoshimura ultimately need to be stored somewhere and that it would be practical to have a vertical rack for storing and aligning the trays as is conventional in the art and consequently a tray drawer device for drawing the tray from the rack so the conveyor device can pick up the ceramic green sheets. In addition, one skilled in the art would have readily recognized that storing the trays in a vertical plane rather than a horizontal plane minimizes the amount of floor space required for the apparatus, which is a desirable result as indicated in Yoshimura (English Translation paragraphs 0004, and 0009-0010).

It is also noted that the drawing device (35) of Takane et al is situated on a rail to guide the drawing device (See left/right arrow in Figure 5 and English translation paragraph 0015). Furthermore, it is notoriously well known and conventional in the drawing art for drawing devices to be arranged on guide rails and Takane et al is an

example of such. One skilled in the art would have readily appreciated that the drawing device would have guide rails.

One skilled in the art looking at the art as a whole, and specifically the teachings of Yoshimura and Takane et al, would have readily appreciated that it is conventional to have the various ceramic sheets arranged in a horizontal plane (See Figures 4 and 6 of Yoshimura) as well as in a vertical plane (See Figure 5 of Takane et al), that arranging in a vertical plane or horizontal plane are alternate expedients and that the vertical arrangement has the advantage of minimizing the floor space required for the apparatus (desired by Yoshimura, see English translation paragraph 0004 and 0009-0010). It would have been obvious to one of ordinary skill in the art at the time the invention was made **to include a vertical rack for aligning and storing the trays and a tray drawer device, arranged on a guide rail, for drawing the trays from the rack so the conveyor device can pick up the individual ceramic green sheets from the trays in the apparatus of Yoshimura, as suggested in Takane et al.**

One skilled in the art would have readily appreciated that in the above combination that either the tray drawing device needs to be movable up and down to remove each tray from the magazine or the vertical rack must be movable up and down to position each tray adjacent the tray drawing device. The two options are alternative expedients and are obvious one over the other in the absence of unexpected results. In addition, one skilled in the art would have readily appreciated that in either option the relative motion is not the result of human force, but mechanical movement, which necessarily is driven by a drive. It would have been obvious to one of ordinary skill in

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the art at the time the invention was made **to include a drive for driving the vertical rack to be raised and lowered in a vertical direction to position the trays at a predetermined height for removal by the tray drawing device** in the apparatus of Yoshimura.

Yoshimura teaches laminating the ceramic green sheets in a prescribed sequence but is silent towards there being a processor unit adapted to receive data concerning at least a type, an order in lamination, and a quantity of ceramic green sheets necessary for a laminate. However, it is well known and conventional to have fully automated systems for laminating ceramic green sheets in a predetermined order, as shown for example in Baccini (Column 2, lines 31-34). Baccini teaches having storage codes or identification plaques on the pallets (trays) for cooperating with code readers in providing correct organization from the automated system (Column 2, lines 60-64). One skilled in the art would have readily appreciated the code readers of the automated system are linked to a processor unit adapted for receiving pertinent information such as the quantity, type, and order of the ceramic green sheets in order for the automated system to stack the ceramic green sheets in the correct order. It would have been obvious to have an automated system with a processor unit adapted to receive data concerning at least a type, an order in lamination, and a quantity of ceramic green sheets necessary for a laminate, as is well known and conventional, in the apparatus of Yoshimura, as suggested in Baccini.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a vertical rack for aligning and storing the trays and a

tray drawer device, situated on a guide rail, for drawing the trays from the rack so the conveyor device can pick up the individual ceramic green sheets in the apparatus of Yoshimura, as suggested in Takane et al; to include a drive for driving the vertical rack to be raised and lowered in a vertical direction to position the trays at a predetermined height for removal by the tray drawing device in the apparatus of Yoshimura; and to have an automated system with a processor unit adapted to receive data concerning at least a type, an order in lamination, and a quantity of ceramic green sheets necessary for a laminate, as is well known and conventional, in the apparatus of Yoshimura, as suggested in Baccini.

Regarding claim 3, JP 04-239604 teaches stacking ceramic green sheets of the same type in the trays and removing the top ceramic green sheet with a chucking device (See English abstract and Figure 1).

Regarding claim 5, JP 04-239604 teaches having a separate tray for each type of ceramic green sheet.

Regarding claim 6, JP 04-239604 teaches having a plurality of ceramic green sheets in each tray.

Regarding claims 7-9, one skilled in the art would have readily appreciated that the movement of the rack would depend upon the configuration of the rack. One skilled in the art would have readily appreciated that racks with a single column of slots for trays such as the one taught in Baccini would only need to be moved along the vertical axis. Additionally in racks with more than one column such as in JP 10-321457, one skilled in the art would have readily appreciated that there exists numerous ways of

aligning the trays with the tray drawer device including moving the rack along the vertical axis and the tray drawer device along the horizontal axis. It would have been within the purview of one skilled in the art to determine the most efficient configuration of the rack and movement of the rack to align the trays with the tray drawer device.

(10) Response to Argument

At the outset it is noted that when combining references in an obviousness rejection it is appropriate to conclude that **one of ordinary skill in the art is expected to utilize common knowledge and common sense.** See. *In re Bozek*, 416 F.2d 1385, 1390, 163 USPQ 545, 549 (CCPA 1969).

It is noted that it appears from the specification that the objective of the invention is to have a manufacturing apparatus for manufacturing electronic monolithic ceramic components that includes a sheet supplier comprising a plurality of trays, each tray holding a plurality of ceramic green sheets of the same type and each tray holding a different type of ceramic green sheet from other trays; a laminator for laminating a plurality of ceramic green sheets supplied from the sheet supplier at lamination station; and a conveyor device for picking up single ceramic green sheets from the trays and conveying the ceramic green sheets to the laminator in a predetermined order. Yoshimura discloses such an apparatus.

Appellants argue that the prior art does not suggest 4 of the claimed limitations, including a) a rack for vertically aligning a plurality of trays, b) a drive for driving the rack to be raised and lowered in a vertical direction, c) a tray drawer device for drawing trays

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from the rack according to a predetermined order, and d) rails arranged to guide a tray drawing operation of the tray drawer device.

Appellants appear to argue that neither Yoshimura nor Takane et al anticipate the claimed limitations (Brief, pp. 12-16), but **fail to address the obviousness of combining the teachings of the references in view of the art as a whole and what would be common knowledge and common sense to one of ordinary skill in the art.** It is noted that proper inquiry on the issue of obviousness "should not be limited to the specific structure shown by the references, but should be into the concepts fairly contained therein, and the overriding question to be determined is whether those concepts would suggest to one skill in the art the modification called for by the claims" *In re Bascom*, 230 F.2d 612, 614, 109 USPQ 98, 100 (CCPA 1956).

Elements A and C: The Vertical Rack and Tray Drawing Device

One skilled in the art looking at the art as a whole, and specifically the teachings of Yoshimura and Takane et al, would have readily appreciated that Yoshimura teaches arranging the ceramic sheets in a horizontal plane (See Figures 4 and 6) and Takane et al teaches arranging the ceramic sheets in a vertical plane (See Figure 5). One skilled in the art would have readily appreciated that arranging in a vertical plane or horizontal plane are alternate expedients. Furthermore, one skilled in the art would have recognized that Yoshimura is directed to minimizing the floor space required for the apparatus (see English translation paragraphs 0004 and 0009-0010) and that a vertical arrangement has the advantage of minimizing the floor space required for the

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apparatus. In addition, one skilled in the art would have readily appreciated that the vertical rack (31) of Takane et al would have been readily capable and/or adaptable for the slots to hold trays with a plurality of ceramic green sheets inside and that the drawing device (35) of Takane et al would be readily capable and/or adaptable for drawing out trays.

In view of all the above, taken with the common knowledge and common sense expected of one of ordinary skill in the art, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a vertical rack for aligning and storing the trays and a tray drawer device for drawing the trays from the rack so the conveyor device can pick up the individual ceramic green sheets from the trays in the apparatus of Yoshimura. In such a combination one skilled in the art would have readily appreciated that the conveyor device (12) of Yoshimura would be capable of working in conjunction with the vertical rack and tray drawer device to pick up the ceramic green sheets from a drawn tray and convey it to the laminating station.

Element B: The Vertical Drive

As a preliminary note, Appellants were taken to have acquiesced to the assertion that one skilled in the art would have readily appreciated that in the above combination that either the tray drawing device needs to be movable up and down to remove each tray from the magazine or the vertical rack must be movable up and down to position each tray adjacent the tray drawing device and that the two options are alternative expedients and are obvious one over the other in the absence of unexpected results.

This acquiescence was noted in paragraph 8 of the office action mailed on 12/8/03 and Appellants were reminded of such in each subsequent office action. Therefore, Appellants argument on page 17 of the brief traversing the assertion that the two options are alternate expedients is not considered timely.

Having the tray drawing device moving up and down relative to the rack and the rack moving up and down relative to the tray drawing device are alternate expedients obvious over one another it and would have been obvious to have either configuration.

One skilled in the art would have readily appreciated that in either option the relative motion is not the result of human force, but mechanical movement, which necessarily is driven by a drive. For example, Takane et al teaches that the drawing device (35) is part of an unloading device (33), which moves up and down (see up/down arrow in Figure 5) using a hoisting device (34) (English translation paragraph 0014).

The translation does not specifically state the hoisting device has a drive of some sort to power the movement, but it necessarily does and one of ordinary skill in the art would have appreciated such. Similarly, one skilled in the art would have readily appreciated that a drive would be needed to power the up and down movement of the vertical rack.

In view of all the above taken with the common knowledge and common sense expected of one of ordinary skill in the art it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a drive for driving the vertical rack to be raised and lowered in a vertical direction to position the trays at a predetermined height for removal by the tray drawing device in the apparatus of Yoshimura.

Element D: The Guide Rails

The drawing device (35) of Takane et al is situated on a rail to guide the drawing device (See left/right arrow in Figure 5 and English translation paragraph 0015). Furthermore, it is notoriously well known and conventional in the drawing art for drawing devices to be arranged on guide rails and Takane et al is an example of such. One skilled in the art would have readily appreciated that the drawing device would have guide rails.

The above assertions were made in the final office action mailed on 7/21/04. Appellants do not argue that Takane et al does not teach a guide rail. Nor do Appellants traverse the statement that guide rails are well known and conventional for guiding drawing devices. Since Appellants have not traversed the well known and conventional assertion, they have acquiesced to the assertion pursuant to MPEP 2144.03 C. It would have been obvious for the drawing device to have guide rails, as is well known and conventional in the art, as exemplified in Takane et al.

Conclusion

Appellants' conclusion of what a combination of Yoshimura and Takane et al would suggest outlined on page 18 of the Brief is incorrect.

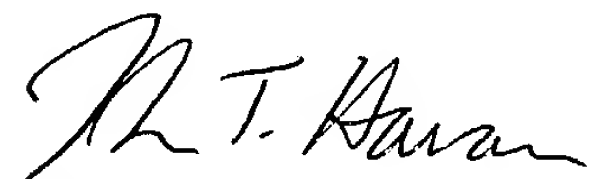
In view of the teachings of Yoshimura, Takane et al, and Baccini, taken with the common knowledge and common sense expected of one of ordinary skill in the art, it

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would have been obvious to derive the claimed apparatus with all of the claimed limitations.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



John T. Haran

Conferees:

Blaine Copenheaver



Steven Griffin

